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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/826,505

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EXAMINER

RENNER, CRAIG A

ART UNIT

PAPER NUMBER

2627

MAIL DATE

DELIVERY MODE

06/12/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/826,505

Applicant(s)

NAKAO ET AL.

Examiner

Craig A. Renner

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 April 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 April 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, "wherein the edge of said servo signal recording head and the outer edge of said guide block are chamfered" must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) and/or an amendment to the claim(s) in compliance with 37 CFR 1.121(c) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the

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applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. The following is suggested:

--MAGNETIC HEAD ASSEMBLY WITH AT LEAST ONE GUIDE BLOCK SET BACK
FROM SLIDING SURFACE OF SERVO SIGNAL RECORDING HEAD--.

3. The abstract of the disclosure is objected to because it does not avoid legal phraseology often used in patent claims, such as, "said" in line 6 thereof. Appropriate correction is required. See MPEP § 608.01(b).

4. The disclosure is objected to because of the following informality:

In line 12 of claim 3, "each said guide blocks" should be changed to --each of
said guide blocks-- for better clarity. Appropriate correction is required.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-3, 13-15 and 19-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Bischoff et al. (US 5,237,476).

Bischoff et al. (US 5,237,476) teaches a magnetic head assembly comprising a recording head (36) wherein a sliding surface of the recording head has a magnetic gap (12) embedded thereon, two guide blocks (each 38) of which one guide block is set adjacent to a position of up-stream of a line of magnetic tape passing the recording head (as shown in FIG. 7, for instance), the other guide block is set adjacent to a position of down-stream of a line of magnetic tape passing the recording head (as shown in FIG. 7, for instance) and both guide blocks are slightly set back from the sliding surface of the recording head (as shown in FIG. 7, for instance) [as per claims 1-3 and 13-15, 19-21]; wherein the recording head includes a planar surface as the sliding surface (as shown in FIG. 7, for instance) and wherein the guide block is displaced from the planar surface (as shown in FIG. 7, for instance), the guide block having a guide block planar surface substantially parallel to the planar sliding surface (as shown in FIG. 7, for instance) [as per claim 22]. With respect to the intended use limitations appearing throughout the claims, note that a recitation with respect to the manner in which a claimed apparatus (i.e., a "magnetic head assembly") is intended to be employed (i.e., "to record servo signals, that serves for positioning of data recording magnetic heads and data reproducing magnetic heads, on magnetic tapes," "to record said servo signals onto the magnetic tape", and "so that said magnetic tape slides on each edge of said servo signal recording head and on an outer edge of each said guide blocks," "wherein

the magnetic tape comes into contact with only the outer edge of the guide block," "slides on the sliding surface of the recording head," and "is not parallel to a surface of the guiding block," for instance) does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations, *Ex parte Masham*, 2 USPQ2d 1647 (PTO BPAI 1987). As the claims are directed to a "magnetic head assembly", per se, the method limitation(s) appearing in lines 2-3 in each of claims 13-15 can only be accorded weight to the extent that it/they affect the structure of the completed magnetic head assembly. Note that "[d]etermination of patentability in 'product-by-process' claims is based on product itself, even though such claims are limited and defined by process [i.e., "surface-finished for hardening", for instance], and thus product in such claim is unpatentable if it is the same as, or obvious form, product of prior art, even if prior product was made by a different process", *In re Thorpe, et al.*, 227 USPQ 964 (CAFC 1985). Furthermore, note that a "[p]roduct-by-process claim, although reciting subject matter of claim in terms of how it is made [i.e., "surface-finished for hardening", for instance], is still product claim; it is patentability of product claimed and not recited process steps that must be established, in spite of fact that claim may recite only process limitations", *In re Hirao and Sato*, 190 USPQ 685 (CCPA 1976).

7. Claims 1-6, 13-15 and 19-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Biskeborn et al. (US 5,883,770).

Biskeborn et al. (US 5,883,770) teaches a magnetic head assembly (FIGS. 12 and 13, for instance) comprising a recording head (71) wherein a sliding surface of the recording head has a magnetic gap (73) embedded thereon, two guide blocks (each 70) of which one guide block is set adjacent to a position of up-stream of a line of magnetic tape (72) passing the recording head (as shown in FIG. 12, for instance), the other guide block is set adjacent to a position of down-stream of a line of magnetic tape (72) passing the recording head (as shown in FIG. 12, for instance) and both guide blocks are slightly set back from the sliding surface of the recording head (as shown in FIG. 13, for instance) (as shown in FIG. 13, for instance) [as per claims 1-3, 13-15 and 19-21]; wherein a wrap angle between the sliding surface of the recording head and a plane surface formed by each edge of the recording head and the outer edge of each guide block is in a range of 1.0 to 6.0 degrees (lines 11-13 in column 6, for instance) [as per claims 4-6]; and wherein the recording head includes a planar surface as the sliding surface (as shown in FIG. 13, for instance) and wherein the guide block is displaced from the planar surface (as shown in FIG. 13, for instance), the guide block having a guide block planar surface substantially parallel to the planar sliding surface (as shown in FIG. 13, for instance) [as per claim 22]. With respect to the intended use limitations appearing throughout the claims, note that a recitation with respect to the manner in which a claimed apparatus (i.e., a "magnetic head assembly") is intended to be employed (i.e., "to record servo signals, that serves for positioning of data recording magnetic heads and data reproducing magnetic heads, on magnetic tapes," "to record said servo signals onto the magnetic tape", and "so that said magnetic tape slides on

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each edge of said servo signal recording head and on an outer edge of each said guide blocks," "wherein the magnetic tape comes into contact with only the outer edge of the guide block," "slides on the sliding surface of the recording head," and "is not parallel to a surface of the guiding block," for instance) does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. See *Ex parte Masham*, supra. As the claims are directed to a "magnetic head assembly", per se, the method limitation(s) appearing in lines 2-3 in each of claims 13-15 can only be accorded weight to the extent that it/they affect the structure of the completed magnetic head assembly. Note that "[d]etermination of patentability in 'product-by-process' claims is based on product itself, even though such claims are limited and defined by process [i.e., "surface-finished for hardening", for instance], and thus product in such claim is unpatentable if it is the same as, or obvious form, product of prior art, even if prior product was made by a different process." See *In re Thorpe, et al.*, supra. Furthermore, note that a "[p]roduct-by-process claim, although reciting subject matter of claim in terms of how it is made [i.e., "surface-finished for hardening", for instance], is still product claim; it is patentability of product claimed and not recited process steps that must be established, in spite of fact that claim may recite only process limitations." See *In re Hirao and Sato*, supra.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 7-12, 16-18 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Biskeborn et al. (US 5,883,770).

Biskeborn et al. (US 5,883,770) teaches the magnetic head assembly as detailed in paragraph 7, supra, further wherein the outer edge of the guide block is chamfered (as shown in FIG. 13, for instance). Biskeborn et al. (US 5,883,770), however, remains silent as to the guide block material being "Al₂O₃-TiC" as per claims 10-12, "which has hardness of more than 1200 Vickers hardness" as per claims 7-9, the magnetic head assembly being used in combination with a "tape guide" to form "another wrap angle" from "0.5 to 2.0 degrees" as per claims 16-18, and the recording head edge being "chamfered" as per claim 23.

Official notice is taken of the fact that Al₂O₃-TiC which has hardness of more than 1200 Vickers hardness is a notoriously old and well know guide block material. Official notice is also taken of the fact that it is notoriously old and well known in the art to use a magnetic head assembly in combination with a tape guide to form another wrap angle in the same field of endeavor in order to maintain guiding stability. Official notice is further taken of the fact that it is notoriously old and well known in the magnetic tape drive art to modify the parameters of magnetic tape drive components during the course of routine optimization/experimentation. Official notice is lastly taken of the fact that it is notoriously old and well known in the art to chamfer head edges to reduce media wear.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have had the guide block material of Biskeborn et al. (US 5,883,770) be $\text{Al}_2\text{O}_3\cdot\text{TiC}$ which has hardness of more than 1200 Vickers hardness, to have had the magnetic head assembly of Biskeborn et al. (US 5,883,770) be used in combination with a tape guide to form another wrap angle from 0.5 to 2.0 degrees, and to have had the recording head edge of Biskeborn et al. (US 5,883,770) be chamfered. The rationale is as follows:

One of ordinary skill in the art would have been motivated to have had the guide block material of Biskeborn et al. (US 5,883,770) be $\text{Al}_2\text{O}_3\cdot\text{TiC}$ which has hardness of more than 1200 Vickers hardness since such is a notoriously old and well know guide block material, and since selecting a known material on the basis of its suitability for the intended use is within the level of ordinary skill in the art, *In re Leshin*, 125 USPQ 416 (CCPA 1960).

One of ordinary skill in the art would have been motivated to have had the magnetic head assembly of Biskeborn et al. (US 5,883,770) be used in combination with a tape guide to form another wrap angle since such maintains guiding stability.

One of ordinary skill in the art would have been motivated to have had the another wrap angle be from 0.5 to 2.0 degrees since such a range, absent any criticality (i.e., unobvious and/or unexpected result(s)), is generally achievable through routine optimization/experimentation, and since discovering the optimum or workable ranges, where the general conditions of a claim are disclosed in the prior art, involves only routine skill in the art, *In re Aller*, 105 USPQ 233 (CCPA 1955). Moreover, in the

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absence of any criticality (i.e., unobvious and/or unexpected result(s)), the parameter set forth above would have been obvious to a person having ordinary skill in the art at the time the invention was made, *In re Woodruff*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

One of ordinary skill in the art would have been motivated to have had the recording head edge of Biskeborn et al. (US 5,883,770) be chamfered since such reduces media wear.

Response to Arguments

10. Applicant's arguments filed 09 April 2007 have been fully considered but they are not persuasive.

The applicant argues that "Bischoff does not disclose, or even suggest, at least the 'guide block which is set adjacent to a position of up-stream of a line of said magnetic tape passing said servo signal recording head and is slightly set back from said sliding surface of said servo signal recording head so that said magnetic tape slides on an edge of said servo signal recording head and on an outer edge of said guide block'" (emphasis added by applicant). This argument, however, is not found to be persuasive as Bischoff does teach a guide block (38) which is set adjacent to a position of up-stream of a line of magnetic tape passing a recording head (36) and is slightly set back from a sliding surface of the recording head (as shown in FIG. 7, for instance). With respect to the intended use limitations appearing throughout the claims, note that a recitation with respect to the manner in which a claimed apparatus (i.e., a

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"magnetic head assembly") is intended to be employed (i.e., "to record servo signals, that serves for positioning of data recording magnetic heads and data reproducing magnetic heads, on magnetic tapes," "to record said servo signals onto the magnetic tape", and "so that said magnetic tape slides on each edge of said servo signal recording head and on an outer edge of each said guide blocks," for instance) does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. See *Ex parte Masham*, supra. That is, since the claims are only drawn to a "magnetic head assembly", per se, the limitations pertaining to a "magnetic tape" can only be accorded weight to the extent that they affect the structure of the magnetic head assembly. The magnetic head assembly of Bischoff is no different structurally from that claimed by applicant.

The applicant further contends that "Biskeborn, also fails to disclose, or even suggest, at least the 'guide block which is set adjacent to a position of up-stream of a line of said magnetic tape passing said servo signal recording head and is slightly set back from said sliding surface of said servo signal recording head so that said magnetic tape slides on an edge of said servo signal recording head and on an outer edge of said guide block'" (emphasis added by applicant). This argument, however, is not found to be persuasive as Biskeborn does teach a guide block (70) which is set adjacent to a position of up-stream of a line of magnetic tape (72) passing a recording head (71) and is slightly set back from a sliding surface of the recording head (as shown in FIG. 13, for instance). With respect to the intended use limitations appearing throughout the claims, note that a recitation with respect to the manner in which a claimed apparatus (i.e., a

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"magnetic head assembly") is intended to be employed (i.e., "to record servo signals, that serves for positioning of data recording magnetic heads and data reproducing magnetic heads, on magnetic tapes," "to record said servo signals onto the magnetic tape", and "so that said magnetic tape slides on each edge of said servo signal recording head and on an outer edge of each said guide blocks," for instance) does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. See *Ex parte Masham*, supra. That is, since the claims are only drawn to a "magnetic head assembly", per se, the limitations pertaining to a "magnetic tape" can only be accorded weight to the extent that they affect the structure of the magnetic head assembly. The magnetic head assembly of Biskeborn is no different structurally from that claimed by applicant.

The applicant lastly asserts "Biskeborn fails to disclose, or even suggest 'a wrap angle $\Theta 1$ between said sliding surface of said recording head and a plane surface formed by the edge of said servo signal recording head and said outer edge of said guide block is in a range of 1.0 to 6.0 degrees'" (emphasis added by applicant). This argument, however, is not found to be persuasive as Biskeborn does teach a wrap angle between a sliding surface of a recording head (71) and a plane surface formed by each edge of the recording head and an outer edge of a guide block (70) is in a range of 1.0 to 6.0 degrees (lines 11-13 in column 6, for instance). Note that the terminology "outer edge" does not necessarily mean the outer-most edge with respect to the head, but may mean any exterior edge. The guide block of Biskeborn as shown in FIG. 13, for instance, has at least five outer edges.

Conclusion

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Craig A. Renner whose telephone number is (571) 272-7580. The examiner can normally be reached on Tuesday-Friday 9:00 AM - 7:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa T. Nguyen can be reached on (571) 272-7579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Craig A. Renner
Primary Examiner
Art Unit 2627

CAR